

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. (Previously Presented) A method, in a computing device, for identifying cross-selling opportunities for a bank, comprising:

said computing device including a controller, a network interface, a profitability analysis device, a profit level categorization device, a data mining device, a cross-selling opportunities recognition device, and a storage device;

said controller, said network interface, said profitability analysis device, said profit level categorization device, said data mining device, said cross-selling opportunities recognition device, and said storage device coupled together using a control/data signal bus;

performing, using said computing device, association analysis for only said bank using only said bank's plurality of bank products and only said bank's plurality of existing banking customers;

said association analysis not performed for any retail business using any retail customers or retail data related to any type of retail services or retail store;

said association analysis including:

receiving, by said controller via said network interface, a request for cross-selling opportunities identification;

said controller initiating retrieval, for each one of said plurality of existing banking customers from a bank's database, of product information about said plurality of bank products, said initiating responsive to said receipt of said request;

said bank losing money on particular ones of said plurality of products when said particular ones of said plurality of products are purchased by particular ones of said plurality of banking customers;

temporarily storing said product information in said storage device;

instructing, by said controller, said profitability analysis device to operate on said stored product information;

analyzing, by said profitability analysis device, said stored product information to identify strategic ones of said plurality of products to form preferred products, said preferred products being only said strategic ones of said plurality of products, said preferred products being ones of said plurality of products that are purchased by ones of said plurality of banking customers that purchase at least a minimum amount of said plurality of products;

calculating, by said profitability analysis device, a profit for each one of said preferred products, and not calculating profit for ones of said plurality of products not identified as being one of said preferred products;

categorizing, based on said profit that was calculated for each one of said preferred products, each one of said preferred products into one of three levels, which are based on said bank's situation; said three levels including a high level of profitability, a medium level of profitability, and a low level of profitability;

said low level of profitability indicating either low profitability or negative profitability when each one of said preferred products that is categorized into said low level of profitability is purchased; each one of said preferred products having an assigned original product code;

for each one of said preferred products: transforming said assigned original product code by embedding one of said three levels into said assigned original product code to form a new product code, said embedded one of said three levels being a level into which each one of said preferred products was categorized;

transforming said original product code into said new product code by concatenating said assigned original product code to form said new product code;

storing each one of said preferred products with said new product code that is associated with said one of said preferred products to form modified preferred products;

processing said modified preferred products to identify associations among said modified preferred products, said processing including performing data mining on said modified preferred products to generate a plurality of association rules based on past behavior of said plurality of banking customers; a particular one of said plurality of association rules associating a Visa Gold credit card with a housing loan, said particular one of said plurality of association rules including a support of 0.22, a confidence of 10.7, and a lift of 13.3;

said particular one of said plurality of association rules including, embedded within said particular one of said plurality of association rules, an identification that a Visa Gold credit card is high profitability and an indication that a housing loan is high profitability;

wherein said particular one of said plurality of associations rules is: Visa Gold with high profitability associated with house loan with high profitability with support of 0.22, 10.7 as confidence, and 13.3 as lift;

analyzing, by said cross-selling opportunities recognition device, said plurality of association rules to identify a first subset of said plurality of association rules that indicate said high level of profitability, said first subset of said plurality of association rules including said particular one of said plurality of association rules;

using said first subset of said plurality of association rules to identify first ones of said plurality of bank customers to which to target marketing, a purchase of one of said preferred products by one of said first ones of said plurality of bank customers resulting in said high level of profitability occurring;

generating one or more marketing strategies based on the first subset of said plurality of association rules;

cross-selling to said first ones of said plurality of bank customers by marketing to said first ones of said plurality of bank customers;

analyzing, by said cross-selling opportunities recognition device, said plurality of association rules to identify a second subset of said plurality of association rules that indicate said low level of profitability;

using said second subset of said plurality of association rules to identify second ones of said plurality of bank customers to avoid, marketing not targeted to said second ones of said plurality of bank customers, a purchase of one of said preferred products by one of said second ones of said plurality of bank customers resulting in said low level of profitability occurring;

excluding, from a next marketing campaign, said second ones of said plurality of bank customers; and

wherein said first ones of said plurality of bank customers are good targets for cross-selling and said second ones of said plurality of bank customers are avoided.

2.-10. (Cancelled)

11. (Previously Presented) An apparatus for identifying cross-selling opportunities for a bank, comprising:

said computing device including a controller, a network interface, a profitability analysis device, a profit level categorization device, a data mining device, a cross-selling opportunities recognition device, and a storage device;

said controller, said network interface, said profitability analysis device, said profit level categorization device, said data mining device, said cross-selling opportunities recognition device, and said storage device coupled together using a control/data signal bus;

said computing device performing association analysis for only said bank using only said bank's plurality of bank products and only said bank's plurality of existing banking customers;

said association analysis not performed for any retail business using any retail customers or retail data related to any type of retail services or retail store;

said association analysis including:

said controller receiving, via said network interface, a request for cross-selling opportunities identification;

said controller initiating retrieval, for each one of said plurality of existing banking customers from a bank's database, of product information about said plurality of bank products, said initiating responsive to said receipt of said request;

said bank losing money on particular ones of said plurality of products when said particular ones of said plurality of products are purchased by particular ones of said plurality of banking customers; means for temporarily storing said product information in said storage device;

said controller instructing said profitability analysis device to operate on said stored product information;

said profitability analysis device analyzing said stored product information to identify strategic ones of said plurality of products to form preferred products, said preferred products being only said strategic ones of said plurality of products, said preferred products being ones of said plurality of products that are purchased by ones of said plurality of banking customers that purchase at least a minimum amount of said plurality of products;

said profitability analysis device calculating a profit for each one of said preferred products, and not calculating profit for ones of said plurality of products not identified as being one of said preferred products;

means for categorizing, based on said profit that was calculated for each one of said preferred products, each one of said preferred products into one of three levels, which are based on said bank's situation;

said three levels including a high level of profitability, a medium level of profitability, and a low level of profitability;

said low level of profitability indicating either low profitability or negative profitability when each one of said preferred products that is categorized into said low level of profitability is purchased;

each one of said preferred products having an assigned original product code;

for each one of said preferred products: means for transforming said assigned original product code by embedding one of said three levels into said assigned original product code to form a new product code, said embedded one of said three levels being a level into which each one of said preferred products was categorized;

means for transforming said original product code into said new product code by concatenating said assigned original product code to form said new product code;

means for storing each one of said preferred products with said new product code that is associated with said one of said preferred products to form modified preferred products;

means for processing said modified preferred products to identify associations among said modified preferred products, said processing including performing data mining on said modified preferred products to generate a plurality of association rules based on past behavior of said plurality of banking customers;

a particular one of said plurality of association rules associating a Visa Gold credit card with a housing loan, said particular one of said plurality of association rules including a support of 0.22, a confidence of 10.7, and a lift of 13.3;

said particular one of said plurality of association rules including, embedded within said particular one of said plurality of association rules, an identification that a Visa Gold credit card is high profitability and an indication that a housing loan is high profitability;

wherein said particular one of said plurality of associations rules is: Visa Gold with high profitability associated with house loan with high profitability with support of 0.22, 10.7 as confidence, and 13.3 as lift;

said cross-selling opportunities recognition device analyzing said plurality of association rules to identify a first subset of said plurality of association rules that indicate said high level of profitability, said first subset of said plurality of association rules including said particular one of said plurality of association rules;

using said first subset of said plurality of association rules to identify first ones of said plurality of bank customers to which to target marketing, a purchase of one of said preferred products by one of said first ones of said plurality of bank customers resulting in said high level of profitability occurring;

means for generating one or more marketing strategies based on the first subset of said plurality of association rules;

means for cross-selling to said first ones of said plurality of bank customers by marketing to said first ones of said plurality of bank customers;

said cross-selling opportunities recognition device analyzing said plurality of association rules to identify a second subset of said plurality of association rules that indicate said low level of profitability;

means for using said second subset of said plurality of association rules to identify second ones of said plurality of bank customers to avoid, marketing not targeted to said second ones of said plurality of bank customers, a purchase of one of said preferred products by one of said second ones of said plurality of bank customers resulting in said low level of profitability occurring;

said second ones of said plurality of bank customers excluded from a next marketing campaign;  
and

wherein said first ones of said plurality of bank customers are good targets for cross-selling and said second ones of said plurality of bank customers are avoided.

12.-30. (Cancelled)